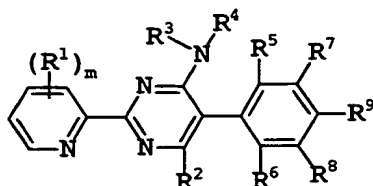


We claim:

1. A 2-(2-pyridyl)-5-phenyl-6-aminopyrimidine of the formula I,



I

in which the substituents and the subscript have the following meanings:

$R^1$  is halogen, hydroxyl, cyano, oxo, nitro, amino, mercapto,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_2$ - $C_6$ -alkenyl,  $C_2$ - $C_6$ -alkynyl,  $C_3$ - $C_6$ -cycloalkyl,  $C_1$ - $C_6$ -alkoxy,  $C_1$ - $C_6$ -haloalkoxy, carboxyl,  $C_1$ - $C_7$ -alkoxycarbonyl, carbamoyl,  $C_1$ - $C_7$ -alkylaminocarbonyl,  $C_1$ - $C_6$ -alkyl- $C_1$ - $C_6$ -alkylaminocarbonyl, morpholinocarbonyl, pyrrolidinocarbonyl,  $C_1$ - $C_7$ -alkylcarbonylamino,  $C_1$ - $C_6$ -alkylamino, di( $C_1$ - $C_6$ -alkyl)amino,  $C_1$ - $C_6$ -alkylthio,  $C_1$ - $C_6$ -alkylsulfinyl,  $C_1$ - $C_6$ -alkylsulfonyl, hydroxysulfonyl, aminosulfonyl,  $C_1$ - $C_6$ -alkylaminosulfonyl or di( $C_1$ - $C_6$ -alkyl)aminosulfonyl;

$m$  is 0, 1, 2, 3 or 4;

$R^2$  is halogen, cyano,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -alkoxy,  $C_1$ - $C_6$ -haloalkoxy or  $C_3$ - $C_6$ -alkenyloxy;

$R^3$ ,  $R^4$  independently of one another, are hydrogen,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_3$ - $C_6$ -cycloalkyl,  $C_3$ - $C_6$ -halocycloalkyl,  $C_2$ - $C_6$ -alkenyl,  $C_2$ - $C_6$ -haloalkenyl,  $C_3$ - $C_6$ -cycloalkenyl,  $C_2$ - $C_6$ -alkynyl,  $C_2$ - $C_6$ -haloalkynyl or  $C_3$ - $C_6$ -cycloalkynyl,

$R^3$  and  $R^4$  can also, together with the nitrogen atom to which they are bonded, form a five- or six-membered ring which may be interrupted by an atom from the group consisting of O, N and S and/or may carry one or more substituents from the group consisting of halogen,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl or oxy- $C_1$ - $C_3$ -alkylenoxy or in which two adjacent

EST 24 AMDT

42

carbon atoms or one N- and one neighboring carbon atom can be connected via a C<sub>1</sub>-C<sub>4</sub>-alkylene chain;

- 5 R<sup>5</sup> is halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-haloalkyl;
- R<sup>6</sup> is hydrogen or one of the groups mentioned under R<sup>5</sup>;
- R<sup>7</sup>, R<sup>8</sup> independently of one another, are hydrogen, halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-haloalkyl;
- 10 R<sup>9</sup> is hydrogen, halogen, hydroxyl, cyano, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>3</sub>-C<sub>6</sub>-cycloalkoxy, C<sub>1</sub>-C<sub>6</sub>-haloalkoxy, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl or C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyl.

- 15 2. A compound of the formula I as claimed in claim 1, wherein m is zero or 1, 2 or 3 and R<sup>1</sup> has the following meaning:

halogen, hydroxyl, cyano, nitro, amino, mercapto, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>1</sub>-C<sub>6</sub>-haloalkoxy, carboxyl, C<sub>1</sub>-C<sub>7</sub>-alkoxycarbonyl, carbamoyl, C<sub>1</sub>-C<sub>7</sub>-alkylaminocarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkyl-C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyl, morpholinocarbonyl, pyrrolidinocarbonyl, C<sub>1</sub>-C<sub>7</sub>-alkylcarbonylamino, C<sub>1</sub>-C<sub>6</sub>-alkylamino, di(C<sub>1</sub>-C<sub>6</sub>-alkyl)amino, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>6</sub>-alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl, hydroxysulfonyl, aminosulfonyl, C<sub>1</sub>-C<sub>6</sub>-alkylaminosulfonyl or di(C<sub>1</sub>-C<sub>6</sub>-alkyl)aminosulfonyl.

20

25

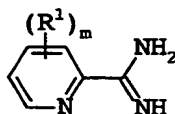
- 30 3. A compound of the formula I as claimed in claim 2, wherein the variables have the following meanings:

- R<sup>2</sup> is halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkoxy;
- 35 R<sup>3</sup>, R<sup>4</sup> independently of one another, are hydrogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl or C<sub>2</sub>-C<sub>6</sub>-alkenyl;
- 40 R<sup>3</sup> and R<sup>4</sup> can also, together with the nitrogen atom to which they are bonded, form a five- or six-membered ring which may be interrupted by an oxygen atom or may carry a C<sub>1</sub>-C<sub>6</sub>-alkyl substituent;
- R<sup>5</sup>, R<sup>6</sup> independently of one another, are halogen;
- 45 R<sup>7</sup>, R<sup>8</sup> independently of one another, are halogen;

43

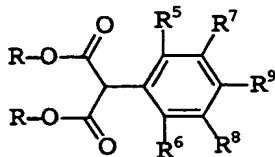
R<sup>9</sup> is hydrogen, halogen, hydroxyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy or C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl.

4. A compound of the formula I as claimed in any of claims 1 to 3, wherein R<sup>2</sup> represents chlorine.
5. A compound of the formula I as claimed in any of claims 1 to 4, wherein the combination of the substituents R<sup>5</sup> to R<sup>9</sup> has the following meanings: 2-methyl-4-fluoro; 2-fluoro-4-methyl; 2,4-dimethyl; 2-chloro-6-fluoro; 2,6-difluoro; 2,6-dichloro; 2-methyl-6-fluoro; 2,4,6-trifluoro; 2,6-difluoro-4-methoxy and pentafluoro.
6. A process for the preparation of a 5-phenylpyridine of the formula I as claimed in any of claims 1 to 5 in which R<sup>2</sup> is chlorine, which comprises reacting a 2-pyridylamidine of the formula II,



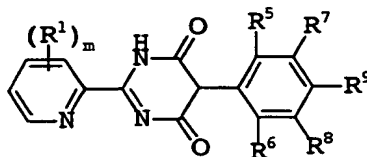
II

with a phenylmalonate of the formula III,



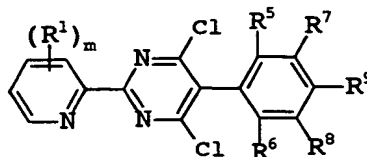
III

in which R is C<sub>1</sub>-C<sub>6</sub>-alkyl, to give a compound of the formula IV,



IV

which is converted by a chlorinating agent to a dichloropyrimidine of the formula V

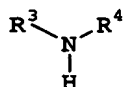


V

which is converted, with an amine of the formula VI

ANT 34 ADT

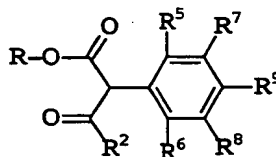
44



VI

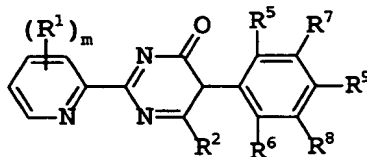
to a pyrimidine derivative of the formula I in which R<sup>2</sup> is chlorine.

7. A process for the preparation of a 5-phenylpyridine of the formula I as claimed in any of claims 1 to 5 in which R<sup>2</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-haloalkyl, which comprises reacting a 2-pyridylamidine of the formula II as claimed in claim 6 with a phenyl-β-ketoester of the formula VII,



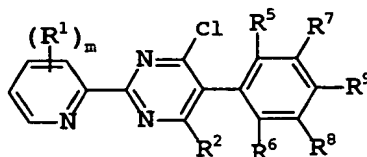
VII

in which R is C<sub>1</sub>-C<sub>6</sub>-alkyl, to give a compound of the formula IVa



IVa

which is converted by a chlorinating agent to a chloropyrimidine of the formula Va



Va

which is converted, with an amine VI as claimed in claim 6, to a pyrimidine derivative of the formula I in which R<sup>2</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-haloalkyl.

8. An intermediate of the formula IV or V as claimed in claim 6, wherein the combination of the substituents R<sup>5</sup> to R<sup>9</sup> has the meanings as claimed in claim 5.
9. An intermediate of the formula IVa or Va as claimed in claim 7, wherein the combination of the substituents R<sup>5</sup> to R<sup>9</sup> has the meanings as claimed in claim 5.

45

10. A composition suitable for the control of harmful phytopathogenic fungi, comprising a solid or liquid carrier and a compound of the formula I as claimed in any of claims 1 to 5.

5

11. A method for the control of harmful phytopathogenic fungi, which comprises treating the fungi or the materials, plants, ground or seeds to be protected from fungal attack with an effective amount of a compound of the formula I as claimed in any of claims 1 to 5.

10

15

20

25

30

35

40

45

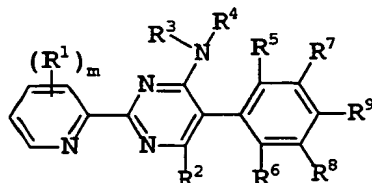
2-(2-Pyridyl)-5-phenyl-6-aminopyrimidines, their preparation and intermediates therein and use thereof in the control of harmful fungi

5

Abstract

2-(2-Pyridyl)-5-phenyl-6-aminopyrimidines of the formula I,

10



I

15 in which the substituents and the subscript have the following meanings:

R¹ is halogen, hydroxyl, cyano, oxo, nitro, amino, mercapto, alkyl, haloalkyl, alkenyl, alkynyl, cycloalkyl, alkoxy, haloalkoxy, carboxyl, alkoxycarbonyl, carbamoyl, alkylaminocarbonyl, dialkylaminocarbonyl, morpholinocarbonyl, pyrrolidinocarbonyl, alkylcarbonylamino, alkylamino, dialkylamino, alkylthio, alkylsulfinyl, alkylsulfonyl, hydroxysulfonyl, aminosulfonyl, alkylaminosulfonyl or dialkylaminosulfonyl;

m is 0 or 1 to 4;

R² is hydrogen, halogen, cyano, alkyl, haloalkyl or alkoxy;

R³, R⁴ are hydrogen, alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkenyl, haloalkenyl, cycloalkenyl, alkynyl, haloalkynyl or cycloalkynyl,

R³ and R⁴ can also, together with the nitrogen atom to which they are bonded, form a five- or six-membered ring which may be interrupted by an atom from the group consisting of O, N and S and/or can be substituted in accordance with the description;

40

R⁵ is halogen, alkyl or haloalkyl; R⁶ is hydrogen or one of the groups mentioned under R⁵; R⁷, R⁸ are hydrogen, halogen, alkyl or haloalkyl; R⁹ is hydrogen, halogen, hydroxyl, cyano, alkyl, alkoxy, cycloalkoxy, haloalkoxy, alkoxycarbonyl or alkylaminocarbonyl.

Processes for and intermediates in the preparation of these compounds and the use thereof in the control of harmful fungi.

5

10

15

20

25

30

35

40

45